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June 04, 2019

Lori Stone
Cardno
1005 W. Washburn Pl
Saginaw, MI 48602

Work Order: **HS19051902**

Laboratory Results for: **Deer Park Permit Day 24**

Dear Lori,

ALS Environmental received 1 sample(s) on May 31, 2019 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: JUMOKE.LAWAL
Dane J. Wacasey

Client: Cardno
Project: Deer Park Permit Day 24
Work Order: HS19051902

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19051902-01	WW-20190530-002-Day 24	Water		30-May-2019 08:00	31-May-2019 13:30	<input type="checkbox"/>

Client: Cardno
Project: Deer Park Permit Day 24
Work Order: HS19051902

CASE NARRATIVE

GCMS Semivolatiles by Method SW8270

Batch ID: 141545

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

Client: Cardno
Project: Deer Park Permit Day 24
Sample ID: WW-20190530-002-Day 24
Collection Date: 30-May-2019 08:00

ANALYTICAL REPORT

WorkOrder:HS19051902
Lab ID:HS19051902-01
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL SEMIVOLATILES BY 8270D		Method:SW8270		Prep:SW3510 / 03-Jun-2019		Analyst: GEY	
Bis(chloromethyl)ether	U		0.00021	0.00021	mg/L	1	03-Jun-2019 17:37
Surr: 2-Fluorobiphenyl	85.7			40-125	%REC	1	03-Jun-2019 17:37
Surr: 4-Terphenyl-d14	111			40-135	%REC	1	03-Jun-2019 17:37
Surr: Nitrobenzene-d5	67.5			41-120	%REC	1	03-Jun-2019 17:37

Note: See Qualifiers Page for a list of qualifiers and their explanation.

WEIGHT LOG

Client: Cardno
Project: Deer Park Permit Day 24
WorkOrder: HS19051902

Batch ID: 141545	Method: LOW-LEVEL SEMIVOLATILES BY 8270D	Prep: 3510_B_LOW
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SamplID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19051902-01	1	960	1 (mL)	0.001042

Client: Cardno
Project: Deer Park Permit Day 24
WorkOrder: HS19051902

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 141545	Test Name : LOW-LEVEL SEMIVOLATILES BY 8270D			Matrix: Water		
HS19051902-01	WW-20190530-002-Day 24	30 May 2019 08:00		03 Jun 2019 14:56	03 Jun 2019 17:37	1

Client: Cardno
 Project: Deer Park Permit Day 24
 WorkOrder: HS19051902

QC BATCH REPORT

Batch ID: 141545 (0)		Instrument: SV-7		Method: LOW-LEVEL SEMIVOLATILES BY 8270D					
MBLK	Sample ID: MBLK-141545	Units: ug/L		Analysis Date: 03-Jun-2019 16:18					
Client ID:	Run ID: SV-7_339704	SeqNo: 5105307		PrepDate: 03-Jun-2019		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bis(chloromethyl)ether	U	0.20							
Surr: 2-Fluorobiphenyl	5.4	0.20	5	0	108	40 - 125			
Surr: 4-Terphenyl-d14	6.035	0.20	5	0	121	40 - 135			
Surr: Nitrobenzene-d5	4.592	0.20	5	0	91.8	41 - 120			

LCS	Sample ID: LCS-141545	Units: ug/L		Analysis Date: 03-Jun-2019 16:38					
Client ID:	Run ID: SV-7_339704	SeqNo: 5105308		PrepDate: 03-Jun-2019		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bis(chloromethyl)ether	3.284	0.20	5	0	65.7	40 - 140			
Surr: 2-Fluorobiphenyl	5.46	0.20	5	0	109	40 - 125			
Surr: 4-Terphenyl-d14	5.588	0.20	5	0	112	40 - 135			
Surr: Nitrobenzene-d5	4.03	0.20	5	0	80.6	41 - 120			

LCSD	Sample ID: LCSD-141545	Units: ug/L		Analysis Date: 03-Jun-2019 16:57					
Client ID:	Run ID: SV-7_339704	SeqNo: 5105309		PrepDate: 03-Jun-2019		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bis(chloromethyl)ether	3.332	0.20	5	0	66.6	40 - 140	3.284	1.45	20
Surr: 2-Fluorobiphenyl	5.159	0.20	5	0	103	40 - 125	5.46	5.67	20
Surr: 4-Terphenyl-d14	5.666	0.20	5	0	113	40 - 135	5.588	1.38	20
Surr: Nitrobenzene-d5	4.04	0.20	5	0	80.8	41 - 120	4.03	0.242	20

The following samples were analyzed in this batch: HS19051902-01

Client: Cardno
Project: Deer Park Permit Day 24
WorkOrder: HS19051902

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020
Texas	TX104704231-19-23	30-Apr-2020

Client:	Cardno	SAMPLE TRACKING
Project:	Deer Park Permit Day 24	
Work Order:	HS19051902	

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19051902-01	WW-20190530-002-Day 24	Login	31/05/2019 17:34:57	JRM	EXT142

Sample Receipt Checklist

Client Name: Cardno - Saginaw MI
Work Order: HS19051902

Date/Time Received: **31-May-2019 13:30**
Received by: **JRM**

Checklist completed by: Jared R. Makan 31-May-2019
eSignature Date

Reviewed by: Dane J. Wacasey 3-Jun-2019
eSignature Date

Matrices: **Water**

Carrier name: **ALS Courier**

Shipping container/cooler in good condition?
Custody seals intact on shipping container/cooler?
Custody seals intact on sample bottles?
VOA/TX1005/TX1006 Solids in hermetically sealed vials?
Chain of custody present?
Chain of custody signed when relinquished and received?
Samplers name present on COC?
Chain of custody agrees with sample labels?
Samples in proper container/bottle?
Sample containers intact?
Sufficient sample volume for indicated test?
All samples received within holding time?
Container/Temp Blank temperature in compliance?
Temperature(s)/Thermometer(s):
Cooler(s)/Kit(s):
Date/Time sample(s) sent to storage:
Water - VOA vials have zero headspace?
Water - pH acceptable upon receipt?
pH adjusted?
pH adjusted by:

Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	1 Page(s)
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	COC IDs:144095
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

4.4c/4.4c UC/C	IR11
43479	
05/31/2019 17:44	

Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Cincinnati, OH
+1 513 733 5336

Everett, WA
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Fort Collins, CO
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Holland, MI
+1 616 399 6070

Chain of Custody Form

Page ____ of ____

COC ID: 144095

Houston, TX
+1 281 530 5656


Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information		Project Information		ALS Project Manager:												ALS Work Order #:	
Purchase Order		Project Name		Parameter/Method Request for Analysis													
Work Order		Project Number		A 8270 Bis (chromomethyl) ether													
Company Name		Bill To Company		B													
Send Report To		Invoice Attn		C													
Address		Address		D													
City/State/Zip		City/State/Zip		E													
Phone		Phone		F													
Fax		Fax		G													
e-Mail Address		e-Mail Address		H													
				I													
				J													
				HS19051902													
				Cardno													
				Deer Park Permit Day 24													
																	
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	ww-20190530-002-DAY 24	5-30-19	800	w	8	2	X										
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:									
Richard Nakamura		Council		<input type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour				Other 2 days									
Relinquished by:		Date:		Time:		Received by:		Notes:									
Richard Nakamura		5-31-19		0930		Richard Nakamura											
Relinquished by:		Date:		Time:		Received by (Laboratory):											
Richard Nakamura		5-31-19		1330		Richard Nakamura											
Relinquished by (Laboratory):		Date:		Time:		Checked by (Laboratory):											
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																	

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

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